1206355

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

August 06, 2004

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: *60/519,113*
FILING DATE: *November 12, 2003*

Certified by

Jon W Dudas

Acting Under Secretary of Commerce
for Intellectual Property
and Acting Director of the U.S.
Patent and Trademark Office

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Joseph	McCrossan	Burbank, California
Tomoyuki	Okada	Nara City, Japan
Masayuki	Kozuka	Arcadia, California

[ ] Additional inventors are being named on the ____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (280 characters max)

A METHOD AND APPARATUS FOR PROVIDING A RICH GRAPHICS COMPOSITING FRAMEWORK FOR INTERACTIVE GRAPHICS WHICH ARE OVERLAID WITH VIDEO CONTENT

CORRESPONDENCE ADDRESS

Direct all correspondence to:

[X] Customer Number | 21611 | ➝ | *Place Customer Number Bar Code Label here*

OR *Type Customer Number here*

[ ] Firm or Individual Name |

Address	Snell & Wilmer LLP
Address	1920 Main Street, Suite 1200

City	Irvine	State	CA	ZIP	92614
Country	USA	Telephone	949-253-4920	Fax	949-955-2507

ENCLOSED APPLICATION PARTS (check all that apply)

[X] Specification   Number of Pages   16

[ ] Drawing(s)   Number of Sheets

[ ] Application Data Sheet. See 37 CFR 1.76

[ ] CD(s), Number

[ ] Other (specify)

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)

FILING FEE AMOUNT ($)

[ ] A check or money order is enclosed to cover the filing fees

[X] The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number | 19-2814 | $160.00

[ ] Payment by credit card. Form PTO-2038 is attached.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

[X] No.

[ ] Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME   Joseph W. Pric

TELEPHONE   949-253-4920

Date | 11-12-03

REGISTRATION NO. (if appropriate) | 25,124

Docket Number: | 17366-1750

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

A METHOD AND APPARATUS FOR PROVIDING
A RICH GRAPHICS COMPOSITING FRAMEWORK
FOR INTERACTIVE GRAPHICS
WHICH CAN BE OVERLAID WITH VIDEO CONTENT

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention is directed to improvements in the BD-ROM high-definition movie mode (HDMV) interactive graphics format to enable supplemental graphics to be provided by a content provider to support background images, animation effects for menu introduction and menu removal, and a wider range of colors to support per page palettes.

Description of Related Art

A digital video broadcast standard (DVB-SUB) has been used as a consumer movie distribution format, and recently there has been development of a BD-ROM format with a BLU-ray Disk Founders (BDF) defining syntax and semantics of data streams and associated decoding models for presentation of graphics and interactive graphics. Development of the shorter wavelength lasers such as a blue laser diode have increased the storage capacity of recording mediums such as a BD-ROM disk.

There is a desire in this art to provide improved editorial features to take advantage of this increased storage capacity without interfering with the audio-video playback of stored data such as a movie.

SUMMARY OF THE INVENTION

The innovations in our present invention are designed to extend the BD-ROM High-Definition Movie Mode (HDMV) Interactive Graphics format that is used in the BD-ROM standards, and more particularly, to provide a method and apparatus of extending this format

support Pop-up menus and Multi-Page menus without causing interruption to the audio-video playback. Traditionally, background images have been supplied by the video playback, and the present invention permits Pop-up menus and Multi-Page menus to be supported directly to represent the background images so that the video playback need no longer supply the menu backgrounds. This permits editorial content to be easily facilitated with Pop-up menus and multi-page menus.

Additionally, the present invention provides a per page palette to support a wider range of colors that can be used in each menu page again while supporting multiple menu pages and Pop-up menus that do not interrupt the audio-video playback. Traditionally, the video playback has been necessary to support any animation effects that would be desired. The present invention provides the feature of permitting the Pop-up menus and Multi-Page menus to be supported directly so that animation effects can be advantageously inserted without disturbing or requiring support from the video playback. Thus, the present invention provides several methods to extend with relatively low impact, the BD-ROM HDMV interactive graphics format and decoder model to permit a richer graphics compositing framework. Accordingly, the present invention permits a direct support of background images for menus and various examples of the manner in which the interactive graphics format can be extended or supported in the following documentation. Additionally, the present extends the graphics framework of the interactive graphics format to support per page palettes which is particularly useful when the format represents menu hierarchy and multi-pages directly. Examples are provided in which the interactive graphics format can be extended to support this per page palettes to increase the range of color that will be available.

The present invention further supports animation effects such as, for example, whites and fades for menu introduction and menu removal. Again, examples are provided to disclose an animation effect for the introduction and removal of menu graphics. Accordingly, the richer graphics compositing framework provided by this invention can be used by content providers to more clearly differentiate DVD-video titles and the new BD-ROM titles.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENT

Please refer to the attached documents for a more detailed description of the present invention.

Panasonic Hollywood Laboratory

Proposal:

Extensions to BD-ROM Hi-Def Movie Mode Interactive Graphics to provide a richer graphics compositing framework

**11/11/03**

Panasonic id as for lif

Basic Proposal

☐ **Expand upon the structure and framework of BD-ROM HDMV Interactive Graphics streams to provide a richer graphics compositing environment whilst minimizing the cost of decoder implementation.**

1. Support Menu background still image – Buttons are "painted" over Menu background. This is useful when pop-up menus and multi-page menus (without interruption to AV playback) are supported as the content provider cannot utilize the video plane to provide a background for the menus.

2. Per-page Palette (to be used when supporting multiple menu pages and pop-up menus that do not interrupt AV playback) – provide wider range of colors to be used in each menu page.

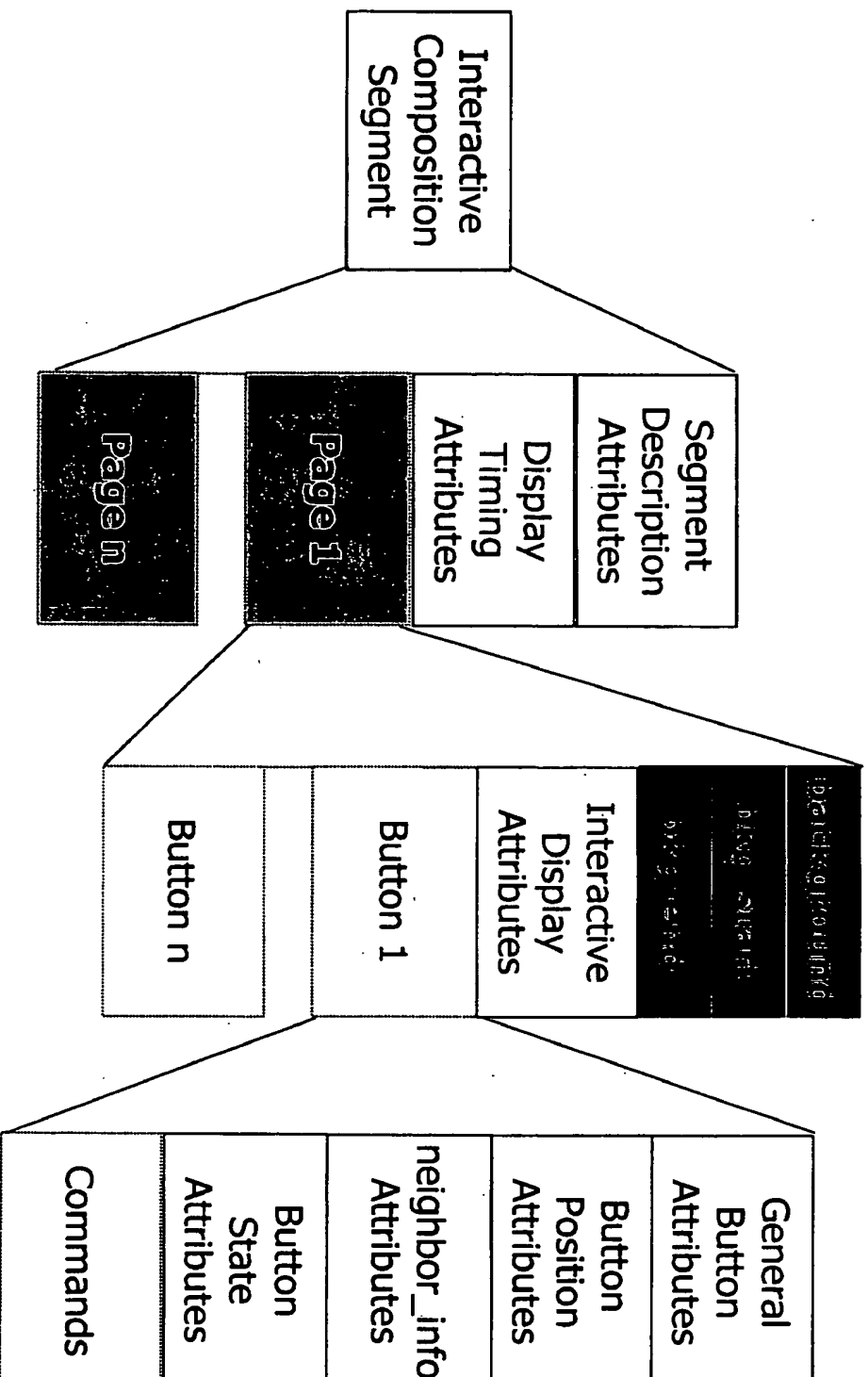3. Support animation effects for introducing and removing menu e.g. fades or wipes

Menu Background: Example 1

□ **Using proposal to extend framework for multiple-page support, add additional fields (position, object-id reference) to support a static Menu Background**
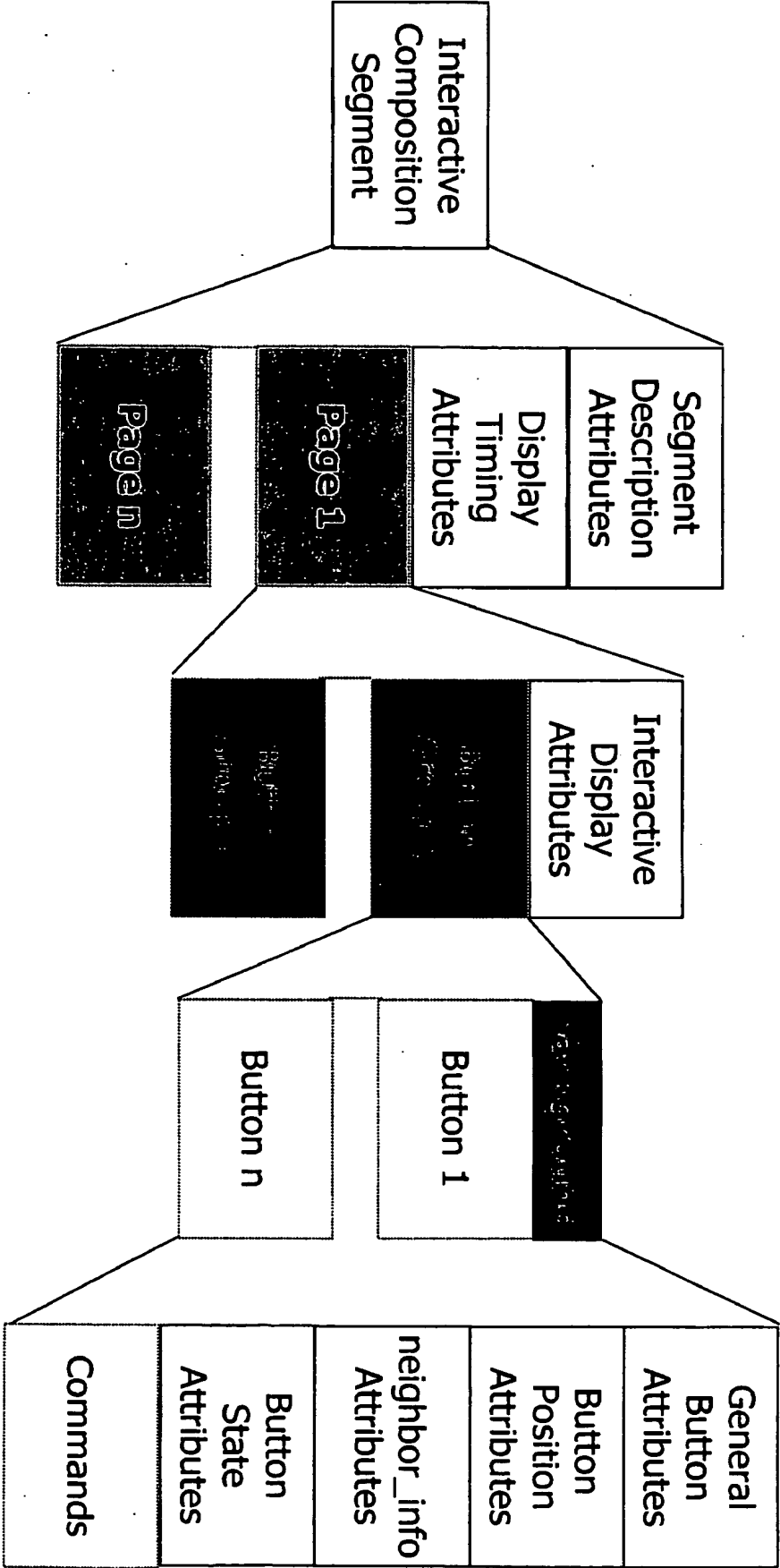
6
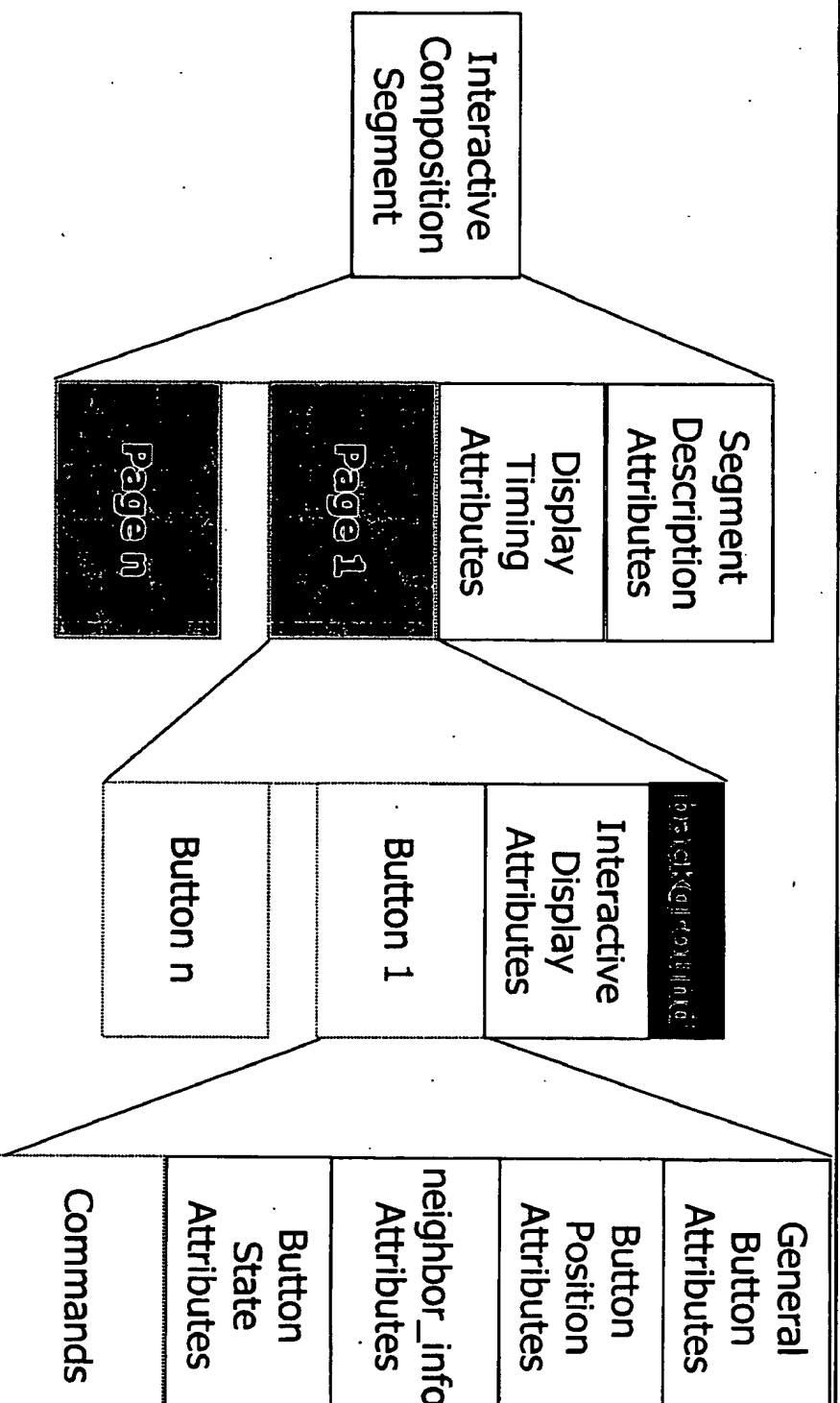
Menu Background: Example 2

☐ **Using proposal to extend framework for multiple-page support, add additional fields to support an animated Menu Background.**

Interactive Composition Segment
- Segment Description Attributes
- Display Timing Attributes
- Page 1
- Page n

Page 1
- background plane graphic
- Interactive Display Attributes
- Button 1
- Button n

Button 1
- General Button Attributes
- Button Position Attributes
- neighbor_info Attributes
- Button State Attributes
- Commands

Menu Background: Example 3

☐ **Using proposal to extend framework for multiple-page support, group Buttons together and provide fields (position, object-id reference) to support a Button Group Menu Background**
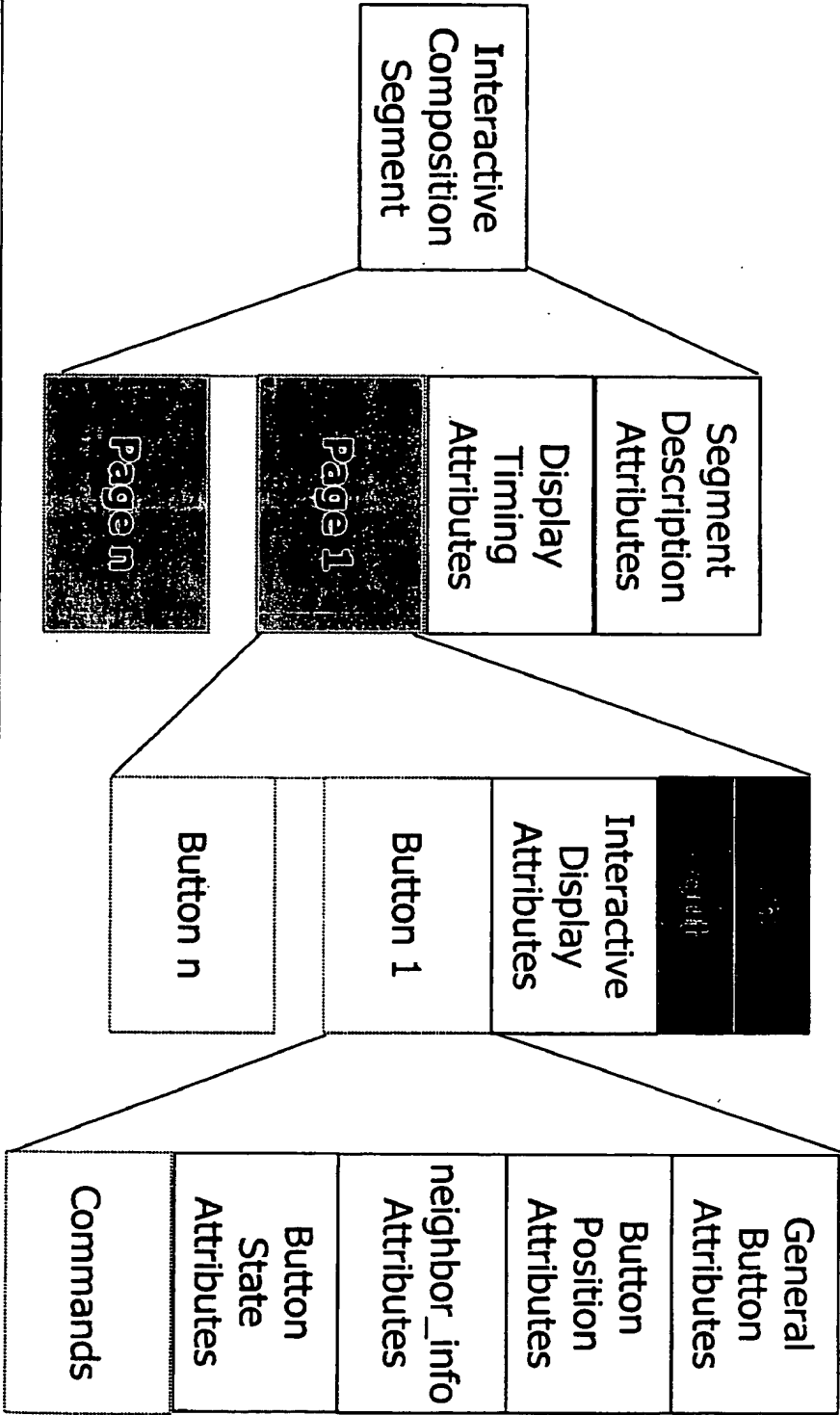
Interactive Composition Segment

Segment Description Attributes	Display Timing Attributes	Page 1	Page n

Interactive Display Attributes	Button 1	Button n

General Button Attributes	Button Position Attributes	neighbor_info Attributes	Button State Attributes	Commands

Per-page Palette: Example

□ **Using proposal to extend framework for multiple-page support, add a field for Palette reference.**
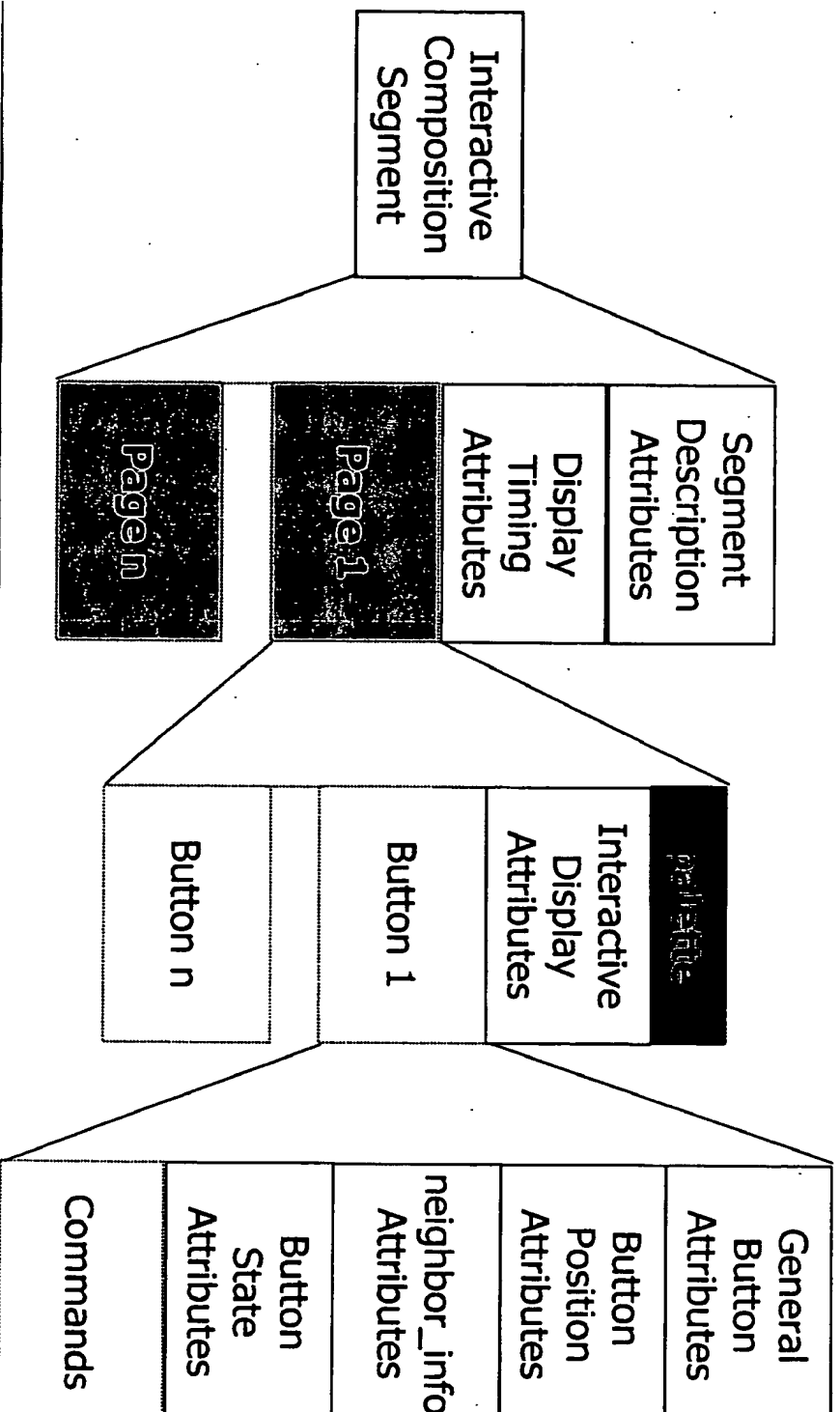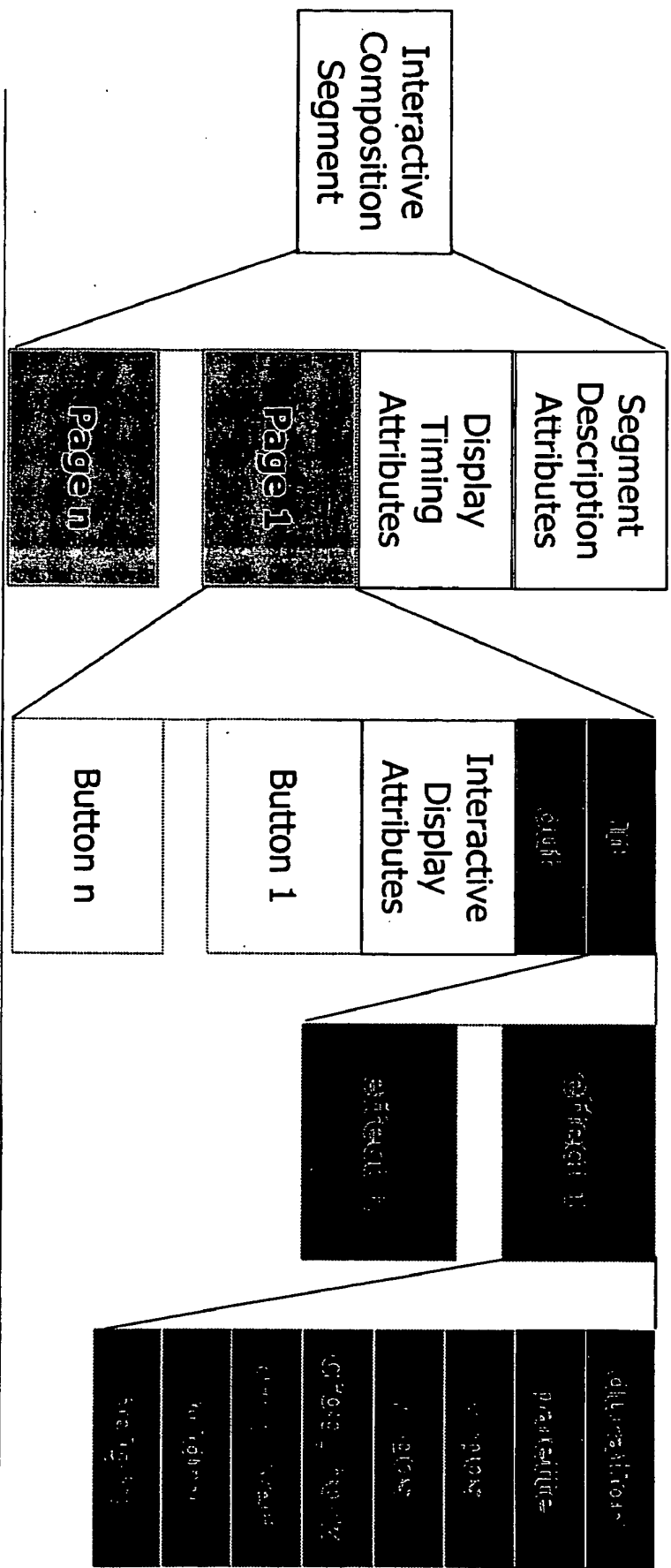
Animation Effects: Example 1

☐ **Using proposal to extend framework for multiple-page support, add additional fields to support an animated intro and an animated removal of Menu Pages.**

Interactive Composition Segment
- Segment Description Attributes
- Display Timing Attributes
- Page 1
- Page n

Page 1
- Interactive Display Attributes
- Button 1
- Button n

Button 1
- General Button Attributes
- Button Position Attributes
- neighbor_info Attributes
- Button State Attributes
- Commands

Animation Effects: Example 1

- ☐ The intro and removal sections of the ICS have the same structure: they consist of an effect sequence.
- ☐ Use an animation effect framework that is similar to the framework provided in Presentation graphics.

Interactive Composition Segment

Segment Description Attributes	Display Timing Attributes	Page 1	Page n

Interactive Display Attributes	Button 1	Button n

Animation Effects: Example 1

Duration of Effect in System Clock cycles

Reference to Palette for this effect (provides framework for fades)

Horizontal Position to start compositing on the Graphics Plane

Vertical Position to start compositing on the Graphics Plane

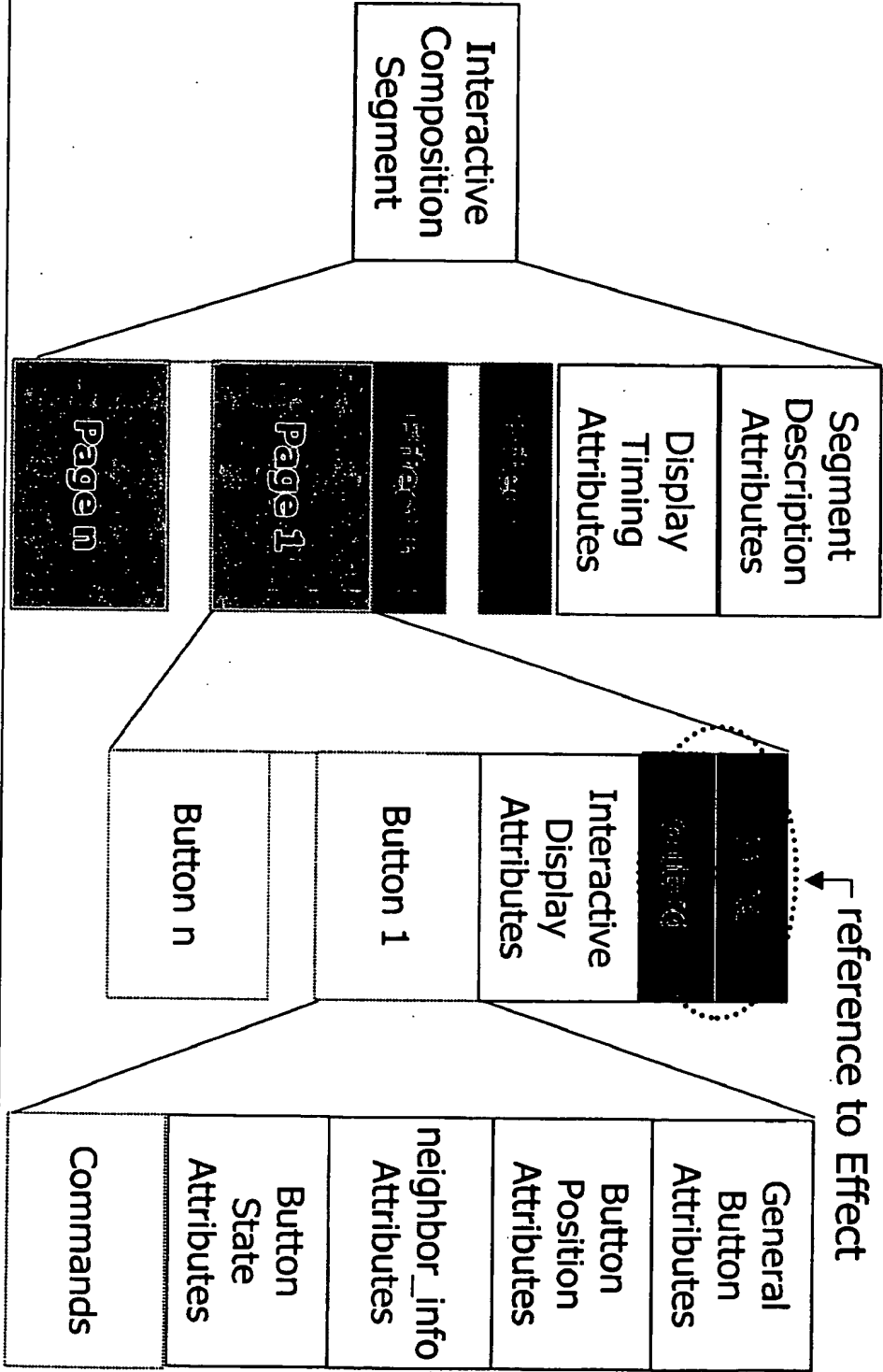Horizontal Position of cropping rectangle in actual Menu image

Vertical Position of cropping rectangle in actual Menu image

Width of cropping rectangle in actual Menu image

Height of cropping rectangle in actual Menu image

Animation Effects: Example 2

☐ **Several animation effects may be identical. Support reuse of animation effects.**

Interactive Composition Segment

Segment Description Attributes	Display Timing Attributes			Page 1	Page n

↑ reference to Effect

Interactive Display Attributes		Button 1	Button n

General Button Attributes	Button Position Attributes	neighbor_info Attributes	Button State Attributes	Commands

Animation Effects: Example 2

☐ **Several animation effects may be identical. Support reuse of animation effects.**

Interactive Composition Segment

Segment Description Attributes
Display Timing Attributes

| Page n |
| Page 1 |
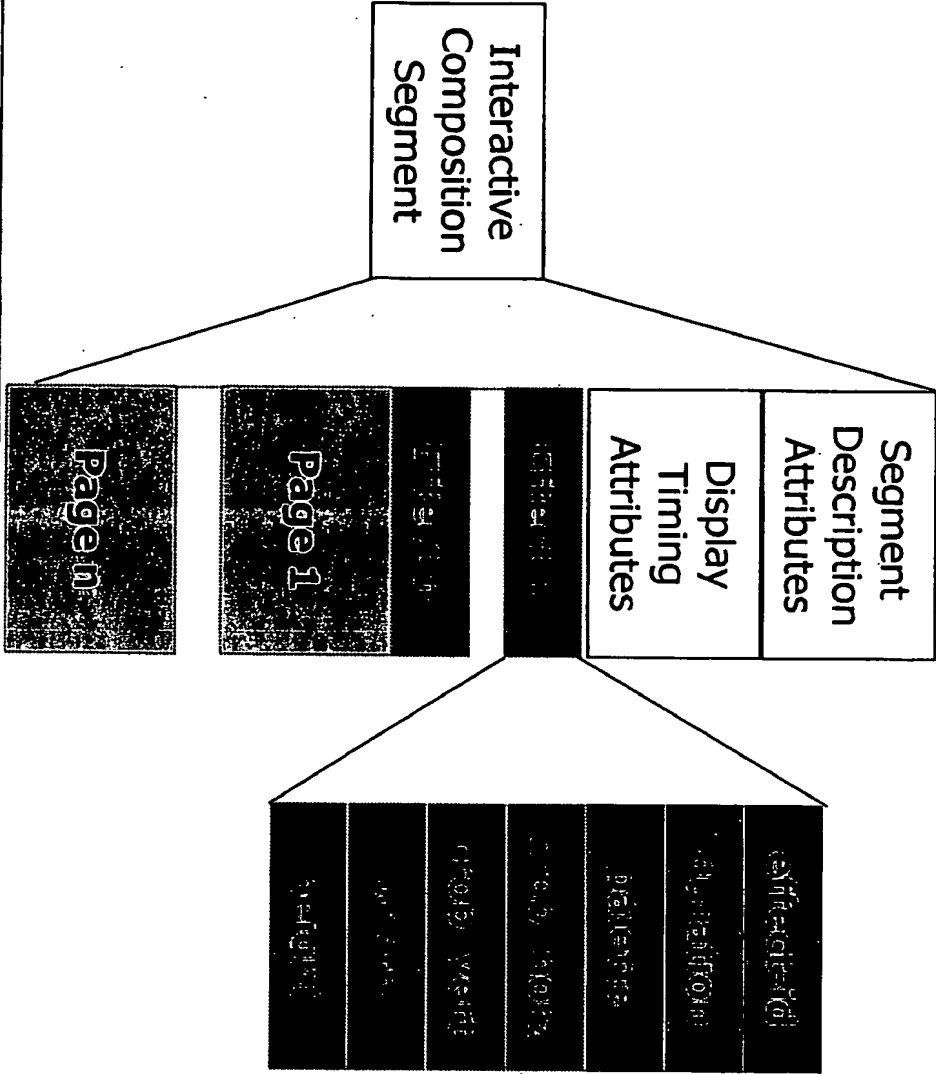
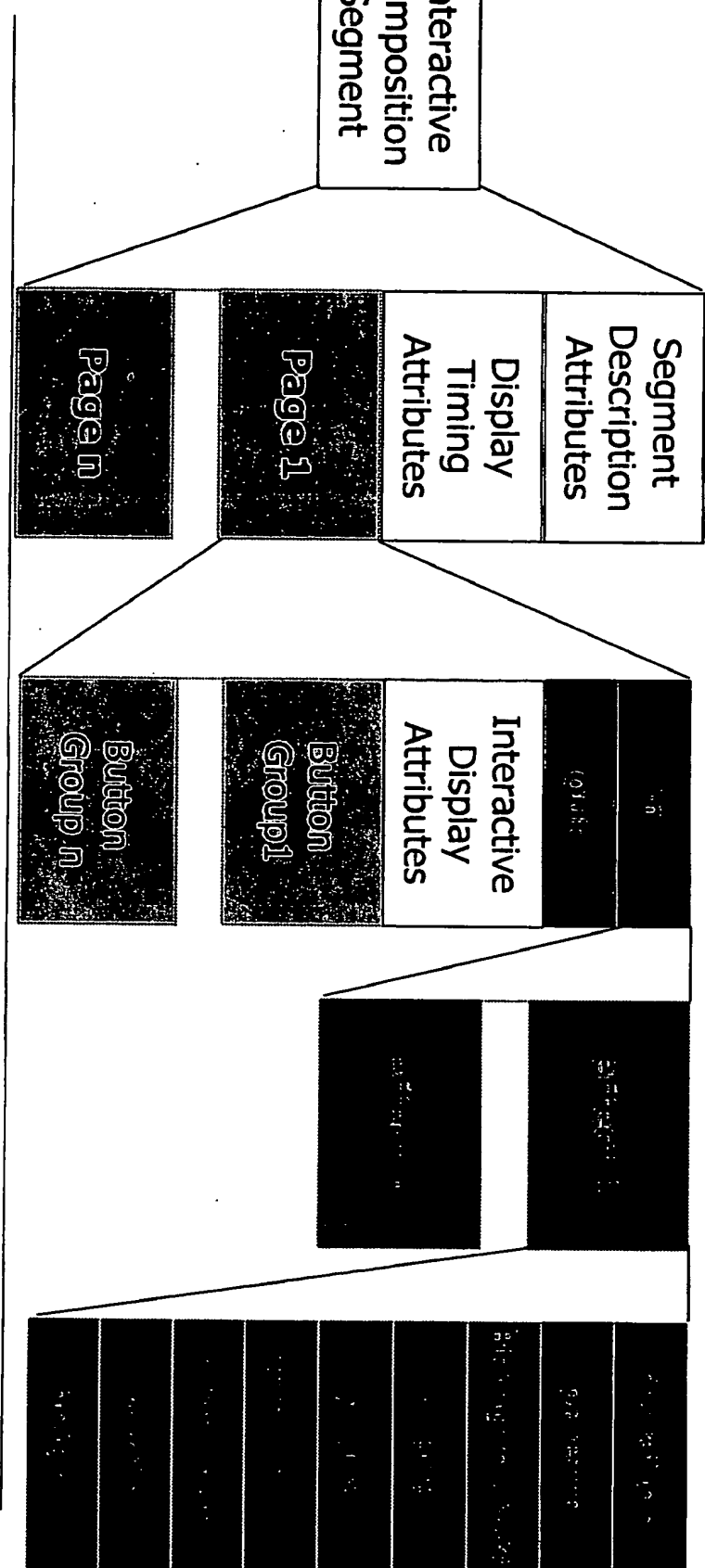# Animation Effects: Example 3

☐ **Using Animation Effects example 1, extend to support additional fields for two cropping areas**

Interactive
Composition
Segment

Segment
Description
Attributes

Display
Timing
Attributes

Page 1

Page n

Interactive
Display
Attributes

Button 1

Button n

Min: 0
Max: 2

15

Animation Effects: Example 4
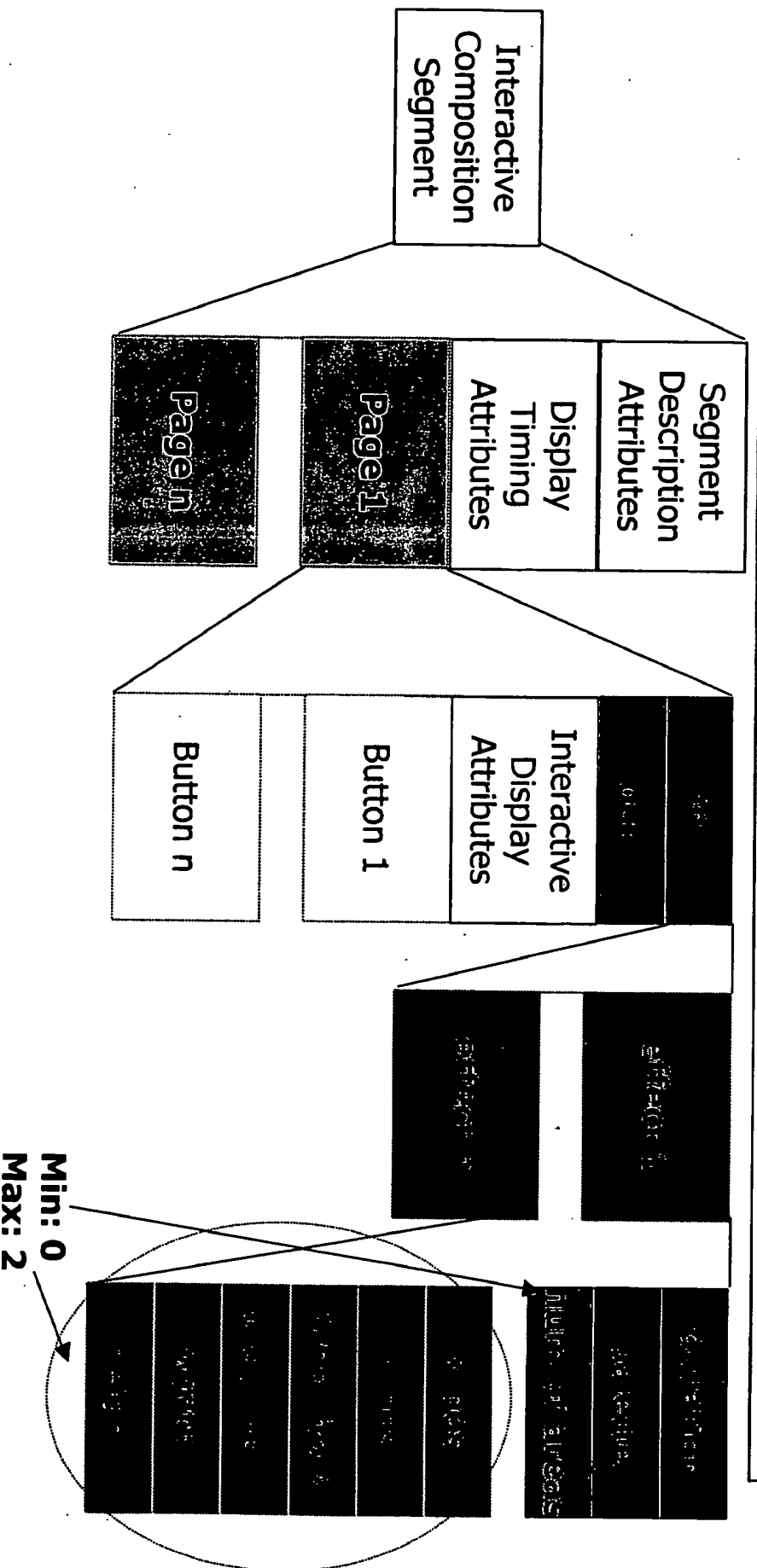
☐ **Extending Animation Effects example 1 and the Background Example 3, reference the Button Group for the cropping rectangle.**

☐ **This provides a flexible framework for different parts of the menu to be animated for introduction and removal.**

Interactive Composition Segment

| Segment Description Attributes | Display Timing Attributes | Page 1 | Page n |

| Interactive Display Attributes | | Button Group1 | Button Group n |

16

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/JP2004/017220

International filing date: 12 November 2004 (12.11.2004)

Document type: Certified copy of priority document

Document details: Country/Office: US
Number: 60/519,113
Filing date: 12 November 2003 (12.11.2003)

Date of receipt at the International Bureau: 12 November 2004 (12.11.2004)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)

World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse